
Clinical Topics

Highlights of the HMA Scientific Session

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MEDICINE FOR THE NEW MILLENNIUM

The outstanding continuing education program for this annual meeting was divided into four sections, basic science, clinical neuroscience, the bionic man: implants and prosthetics, and organ and tissue transplantation.

BASIC SCIENCE UPDATE - Friday, October 29, 1999 -

The first basic science offering featured a detailed discussion of Hypercoagulable States - What Should Be Done? by Dr. Stacey Honda, pathologist and assistant clinical professor at the John A. Burns School of Medicine. Noting that venous thromboembolism is the 3rd most common cardiovascular disorder, following ischemic heart disease and stroke, she elaborated on the three causes; inherited, acquired and physiologic. Her comprehensive presentation localized primarily around the inherited defects with ethnic variations. The talk was delivered rapidly with multiple detailed slides.

Nadhipuram V. Bhagavan, Ph. D., Professor and Chairman of the Department of Biochemistry and Biophysics at JABSM, followed with a discussion of Prostate Specific Antigen (PSA) What To Do? Prostate cancer is the leading cancer site in men with 179,000 new cases in 1999. PSA is the best tumor marker thus far, but that very sensitivity creates questions. This glycoprotein serine protease is found in small concentrations in other tissues, both benign and malignant. Noting that 20% of men with prostate cancer have normal PSAs, and that possibly more men die with prostate cancer than from it, Dr. Bhagavan concluded his excellent presentation with a stimulating question and answer session. Interesting and compelling presentation.

A rousing round of applause greeted the next speaker, Ryuzo Yanagimachi, Ph.D., the noted professor, who presented a program about Cloning of a Mouse - What Does This Scientific Breakthrough Mean? Using slides of various animals, mice, sheep, cattle, goat, pig, and even the woolly mammoth, Dr. Yanagimachi discussed questions of public acceptance, and possible uses of cloning. People are very favorable to cloning of animals to benefit our society, but 99% of those polled are against human cloning. His accent was evident, but the presentation was witty, informative, personable and altogether captivating.

FOCUS OF CLINICAL NEUROSCIENCE -

The second session shifted to a focus on clinical neuroscience by Cherylee W.J. Chang, M.D., Director of the Stroke Center at Queen's Medical Center. Using slides and a comprehensive handout, Dr. Chang presented a very good discussion of Stroke as a Brain Attack - What Is Important and Why the Rush? She noted that 3/4 million

Americans are hit with stroke each year at a cost of \$41 billion. Nationally 85% are ischemic and 15% hemorrhagic, while in Hawaii the ratio is 70/30. The reason for this disparity has not been determined. Dr. Chang emphasized the value of early diagnosis and treatment. It is essential to have a coordinated team approach with prompt 911 response, EMS and hospital personnel ready to provide necessary support, with CT scans, thrombolytics, anti-coagulants, neuroprotectors, and possibly neurointerventional radiologists. With a ready and trained team, we will be able to decrease the morbidity of this disabling condition. This was valuable material, well presented.

Eric M. Oshiro, M.D. Honolulu neurologic surgeon, followed with a paper on Head and Spinal Cord Injury in Hawaii - We Can Do Better. He noted the need for prompt support with oxygen and maintenance of blood pressure in patients presenting in coma. High doses of steroids are often needed, and close observation for progressive neurologic deterioration, with signs of intracranial hypertension. Management of acute spinal cord injuries require identification, stabilization, and immobilization with appropriate devices. Therapy with high dose steroids, oxygen and support of blood pressure are again the primary consideration.

The final paper of the morning was a Continuum of Neurological Care in Hawaii, presented by Jill Williams, M.D. Physical Medicine and Rehabilitation of the Rehabilitation Hospital of the Pacific. Focusing on development to fullest potential after stroke or injury, Dr. Williams showed how patients are aided in speech recovery, managing deformities, proper exercise, and learning how to care for themselves. The physician's role is to manage pain, insomnia, spasticity and depression. Occupational therapy can be provided, and family members are educated and instructed in how to assist the patient in recovery and adaptation. Coordinated planning and efforts can result in optimal development and rehabilitation.

THE BIONIC MAN - PROSTHETICS AND IMPLANTS. Saturday, October 30, 1999

The morning session began with a presentation of Joint Implants by Thomas J. Kane III, M.D., Chief, Section of Joint Implant Surgery at JABSM. Describing implants of shoulder, hip and knee, he noted the biologic structure of cartilage and its healing structure fibrocartilage. Research has led to replacement of fibrocartilage with autologous tissue which can be harvested, grown in a lab and replaced to aid return to normal function. Regarding implants, material may be ceramic, polyethylene, and cobalt chrome, variously resistant to degeneration in time. New synthetics are constantly being studied for bio-tolerance and durability. Some joints can be well replaced such as hip and knee, and the shoulder somewhat less effectively, however the wrist and ankle joint im-

plants are much less successful. The primary indication for joint replacement is pain, and secondarily, mobility. At present, about 400,000 hip replacements are performed in America each year, with longevity of about 15 years.

Cataract Surgery and Intraocular Lens Implantation by Carlos A. Omphroy, M.D., Assistant Clinical Professor Surgery at JABSM centered around a careful history and evolution of cataract surgery with good slide illustrations. The development of intraocular lens implantation began almost 50 years ago by Dr. Harold Ridley in Great Britain. Subsequently, various implants were described and evolved, with variable degrees of success, so that acceptance awaited an implant that could be well tolerated. Today, cataract surgery is the most common operation performed with over two million surgeries each year. The operation is a purely ambulatory procedure with a high degree of successful outcome, and great savings in patient morbidity, and vast reduction in expenditures.

Clyde H. Ishii, M.D., Clinical Associate Professor of Surgery, John A. Burns School of Medicine, presented a paper on Implants in Plastic Surgery. With an excellent printed outline, he noted the history of plastic surgery, and that the word comes from the Greek, plastikos - "to mold." Biocompatibility and implant toxicity are matters of great importance, and the surgeon's skill and location of implant are factors. Systemic disease, hypersensitivity, and carcinogenicity are rarely associated with current polymeric and metal implants. Primary causes of failure are infection, extrusion, pain, loosening, displacement, fracture, implant degradation and inflammation. All synthetic polymers stimulate fibrous encapsulation. Implants have proved successful for the nose, cheek, chin, breasts, joints, teeth, and bone. The future will yield implants of longer duration and bioresorbable polymers where tissue will gradually replace the artificial one.

Edward N. Shen, M.D. Professor and Chief of Cardiology at the JABSM followed with a paper on Cardiac Implants and Prosthetics. The latest stents can open vessels and save a lot of surgery in cardiovascular disease, even for large vessel stenosis. Hospitalizations can be reduced from seven to two days. Prosthetic heart valves were discussed, as were pacemakers and defibrillators. Minification of devices has rendered them much more versatile for heart failure and other cardiac myopathies. The artificial heart is still on the horizon. No handouts were included.

A marvelous presentation of the Bionic Man: Implants and Prosthetics of cochlear implants for severely deaf patients was given by Kazuo Teruya, M.D. Associate Clinical Professor of Surgery at JABSM. With appropriate illustrations, the procedure was described to show the cochlear implant, an electronic device not a hearing aid, surgically implanted in the cochlea to stimulate the nerve endings directly. Performance varies, and rehabilitation in auditory and speech therapy is extremely important. Dr. Teruya presented two patients who described their success with the cochlear implant in a dramatic and refreshing manner. An excellent program.

The session concluded with the Bionic Lower Limb, by Gary A. Okamoto, M.D. Associate Clinical Professor of Medicine at JABSM. The oldest prosthesis was found in a tomb in Capua, Italy dating to 300 B.C. and was made of bronze and iron with a wooden core. Stimulated by wars and other trauma, serious research and development accelerated with World War II. Over the last three decades an explosive growth in prosthetics has occurred. Dr. Okamoto's

presentation included a comprehensive handout and a video and slides. Various devices for amputees were illustrated, and the subject was well covered with illustrations of walking, running, and athletic competition.

ORGAN AND TISSUE TRANSPLANTATION - Sunday, October 31, 1999.

The final educational session began with a presentation of Organ Retrieval: Hawaii's Experience and How to Increase Donations by Robyn Kaufman, Executive Director, Organ Donor Center of Hawaii. Presently, 225 patients are awaiting organ transplant in Hawaii. Donors are difficult to get in Hawaii due to relatively small numbers and problems with gaining consent. When death of a potential donor is imminent, the organ donor center should be contacted. Brain death needs to be determined and consent of the family obtained. The time of approach to the family of the donor must be considered when asking for consent to donate organs, irrespective of the dying person's wishes.

Fred Safi, Eye Bank Director for the Hawaii Lions Eye Bank and Makana Foundation, gave a paper, Cornea and Eye Retrieval summarizing retrieval of eyes for corneal transplant and scleral banking. He noted that the first corneal transplant was attempted in 1905, and is now a common and successful procedure. Tissue typing is not necessary, and rejection is uncommon. Whenever possible the tissue should be harvested in four to six hours, and can be maintained in preservative solution for up to five days.

Renal Transplantation was presented by Whitney M. L. Limm, M.D., Associate Professor of Surgery JABSM. The first successful kidney transplants occurred in the 1960s, and are now done routinely. In 1998, twelve thousand renal transplants were performed in the United States. The failure rate is between 10 and 15% in the first year, due to death or tissue rejection. After one year the problem is chronic rejection or death. Steroids and immunosuppression drugs are used, and the future offers more precise DNA testing and better drugs to prevent rejection.

Liver Transplantation for end stage liver disease was discussed by Linda L. Wong, M.D., Assistant Clinical Professor at JABSM. The procedure, once considered impossible, has become a standard operation at transplant centers. The first year survival is 79%, three year 67% and five year 62%. The primary reasons for liver failure are hepatitis B, C, or alcoholic cirrhosis. There are more patients than donor livers, so the question arises who gets the liver? Patients are rated from one to four according to severity of illness, but that rationality is being challenged. Arguably, the sickest patients often have the worst prognosis, therefore perhaps the liver should go to the healthier patient with the best chance of survival. Also, factors such as politics, wealth, and fame, such as the Mickey Mantle episode can enter in, but an allocation scheme is used whenever possible.

Carlos Moreno-Cabral, M.D., Assistant Professor of Surgery at JABSM gave an excellent paper on Cardiac Transplantation. Christiaan Barnard in South Africa performed the first cardiac transplant in 1967. Dr. Norman Shumway at Stanford pioneered the procedure in America in 1968, and now there are 304 transplant programs and 48,451 heart operations have been performed. Overall the survival rate at one year is 79%, and the median survival is 8.8 years. The program was initiated at St. Francis Hospital in March 1987, and as of September 1999, 32 transplants have been done with

three hospital deaths. The approximate cost is \$150,000, and the longest survivor is beyond 10 years. Donor availability remains the main limiting factor. Dr. Cabral presented current research in ventricular assist devices, and outlined some future expectations in cardiac devices.

Controversies in Organ Donation and Transplantation was the topic for Alan H.S. Cheung, M.D., Professor of Surgery at JABSM. New technology has brought controversies as the question of organ replacement has opened many areas of challenge. When should a transplant be done? Who should receive the tissue? What about using the tissue of anencephalic infants, prisoners, and what about the use of xenotransplants from animals? Now the internet offers the possibility of buying donor organs. As this field expands how can the escalating costs of harvesting donor organs, performing surgery and immunosuppressive drugs be funded? Many questions and some

conflicts attend this burgeoning area of medical technology, and structure and appropriate mechanisms need to be discussed and planned.

The program drew to a close with a paper on Bone Marrow Transplantation Update by Kaye Kawahara, M.D. Director of Bone Marrow Transplantation at St. Francis Medical Center. Sources of stem cells for transplant are bone marrow, peripheral blood, and cord blood. The procedure is reserved for those patient's suffering with diseases that have little chance for survival such as some of the leukemias, lymphomas and advanced breast cancer. The procedure has been challenged by reports of recent research which indicate that bone marrow transplant has proved no more effective than standard cancer therapy. Part of the difficulty is that there is no way to run a randomized study. Future directions include gene therapy, graft manipulation and stem cell selection.



Scientific Session at the 1999 HMA Annual Meeting.